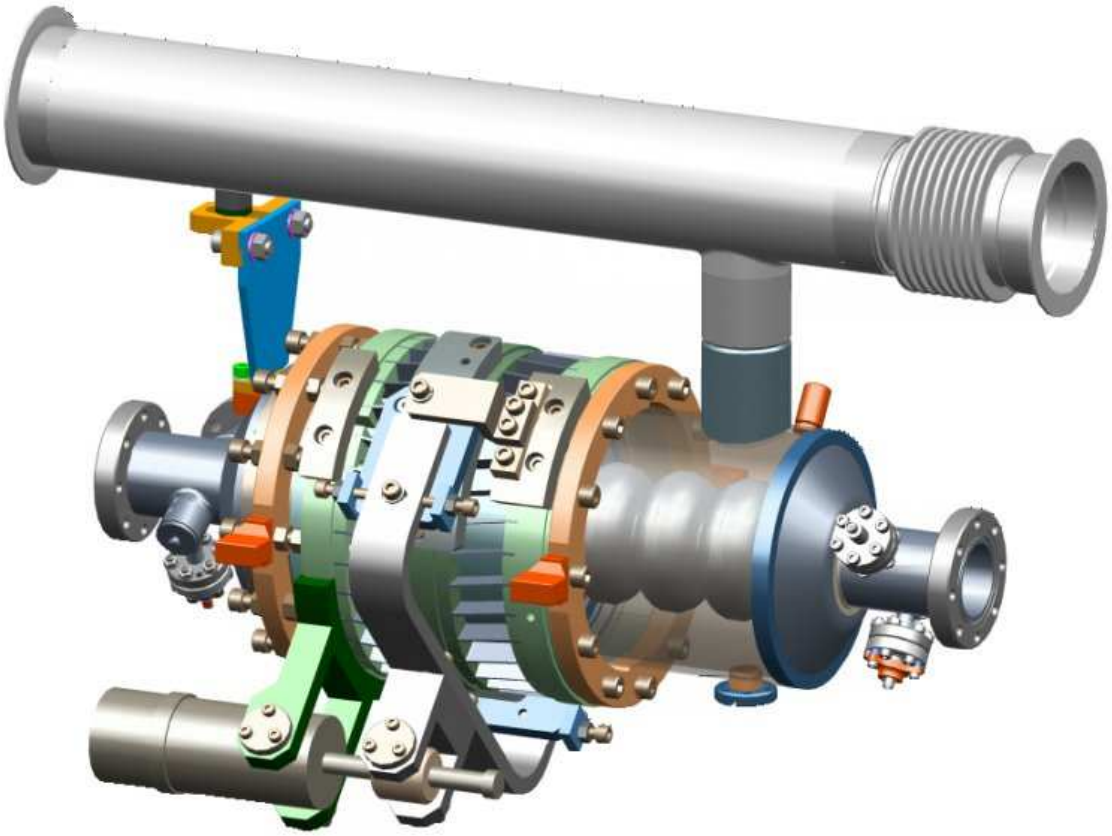
# Preparing I-DEAS Images for Use in Other Media



**Fermi National Accelerator Laboratory**
**Training and Development Department**

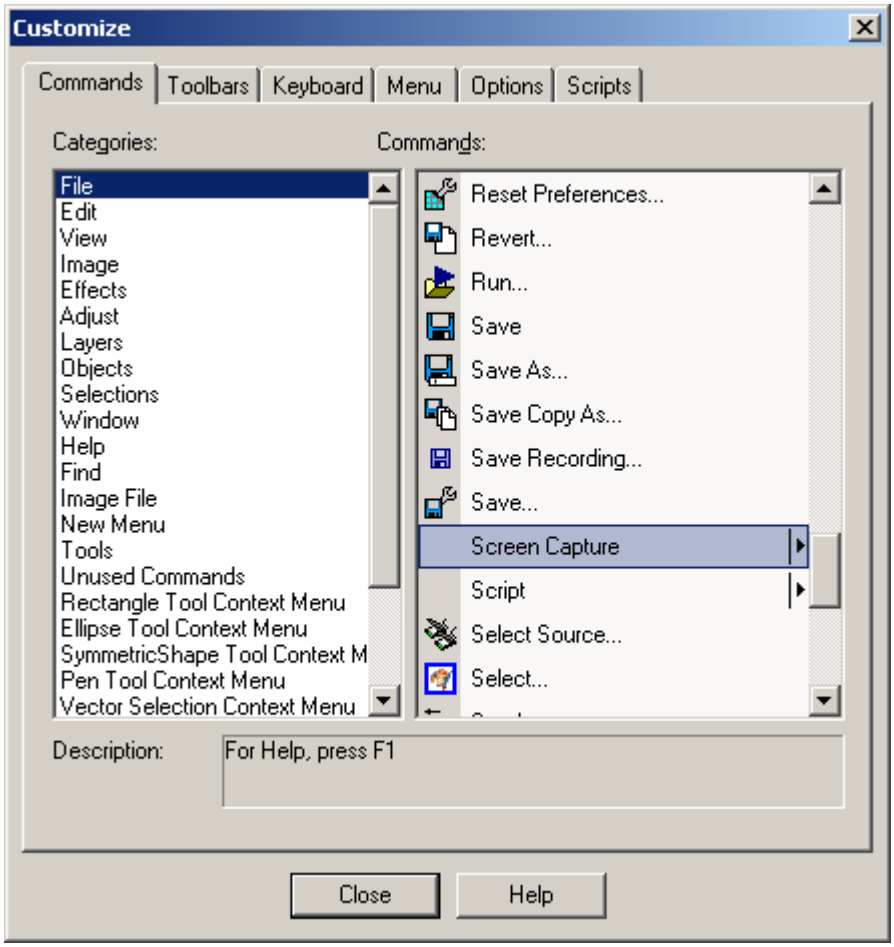
## Agenda

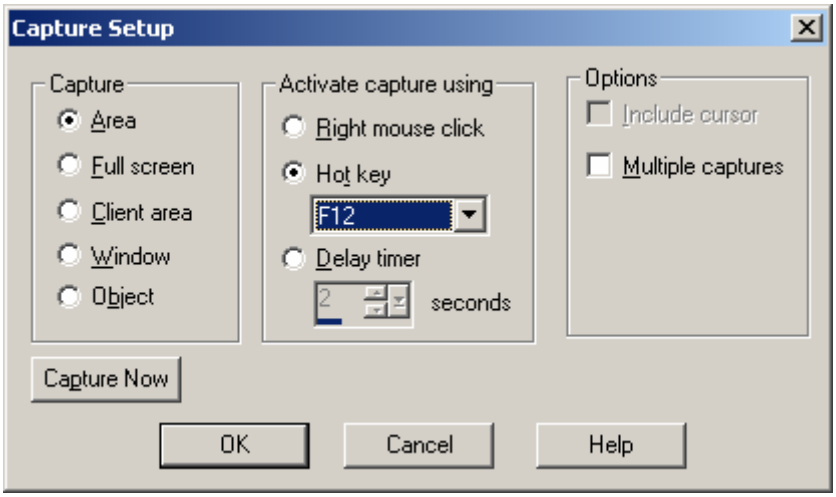
- Set up Paint Shop Pro to capture images.
- Prepare I-DEAS images for screen capture.
- Capture and save an image with Paint Shop Pro.
- Insert saved images into Word and PowerPoint.
- 2D drawing techniques.
- Large size I-DEAS image techniques.

## Objectives

- Optimize I-DEAS images and use Paint Shop Pro to capture and save them.
- Insert different image formats into Microsoft Word or PowerPoint.
- Optimize I-DEAS 2-D images.
- Create I-DEAS image files that are appropriate for large-scale printers.

# Pant Shop Pro Settings



## Set up Paint Shop Pro to capture images

The first step to capturing I-DEAS images is to configure Paint Shop Pro to perform screen captures. Here are the steps to add a **screen capture** button to your Paint Shop Pro toolbar:

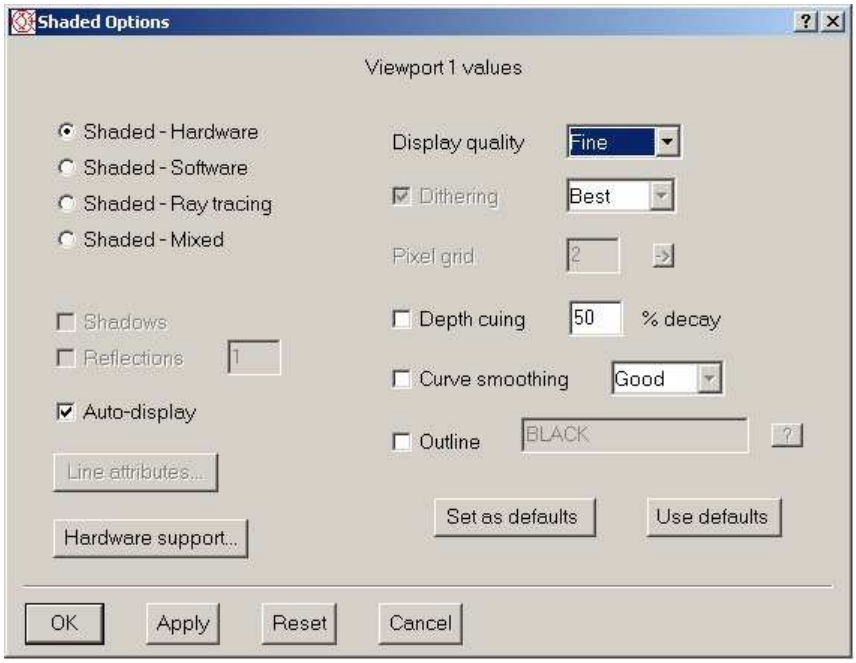
### Customizing a toolbar

1. Open Paint Shop Pro.
2. Choose **View > Customize**.
3. In the **Commands** tab, choose **File > Screen Capture**.
4. Left click and hold on the icon, drag it to the toolbar of your choice, and drop it on the toolbar.
5. Click **Close**.

### Creating a hot key

1. Click on the new **Screen Capture** button on your toolbar, and choose **Setup** from the drop down menu.
2. Make sure that **Capture** is set to **Area**.
3. Under **Activate capture using**, select **Hot key**, and choose **F12** as your hot key.
4. Click **Ok**.

# Shaded Options

# Prepare I-DEAS images for screen capture

## Display options

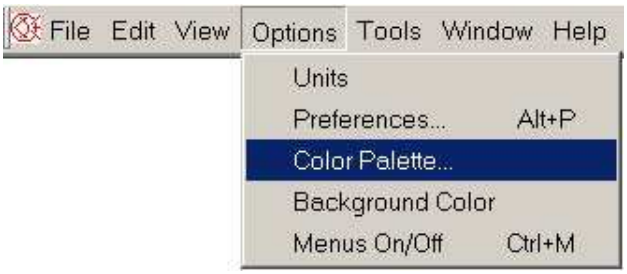
### Shaded images

1. Open a shaded image in I-DEAS.
2. Click and hold the **Shaded Hardware** icon.
3. Select **Options**.
4. Choose **Display Quality > Fine**.
5. Hit the **Apply** button.

### Part color

It is important to choose appropriate colors to make your part look realistic. For instance, if you are drawing a copper pipe, you should choose a copper color for the image. I-DEAS has 16 default colors, but you can import an I-DEAS universal file that will allow you to use more than 500 colors. To import custom colors:

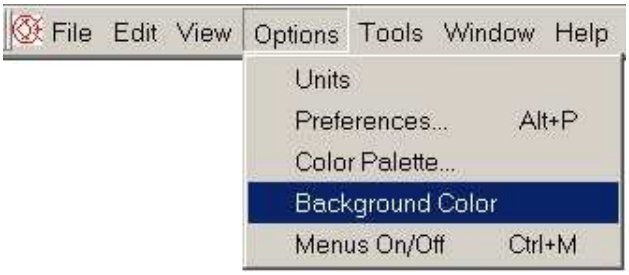
1. Choose **File > Import** I-DEAS design universal file.
2. Browse for the file path (or copy and paste the file name “colors-xwindows.unv” into the field).
3. After you have imported the file, choose **Options > Color Palette** and you will now see 523 colors.



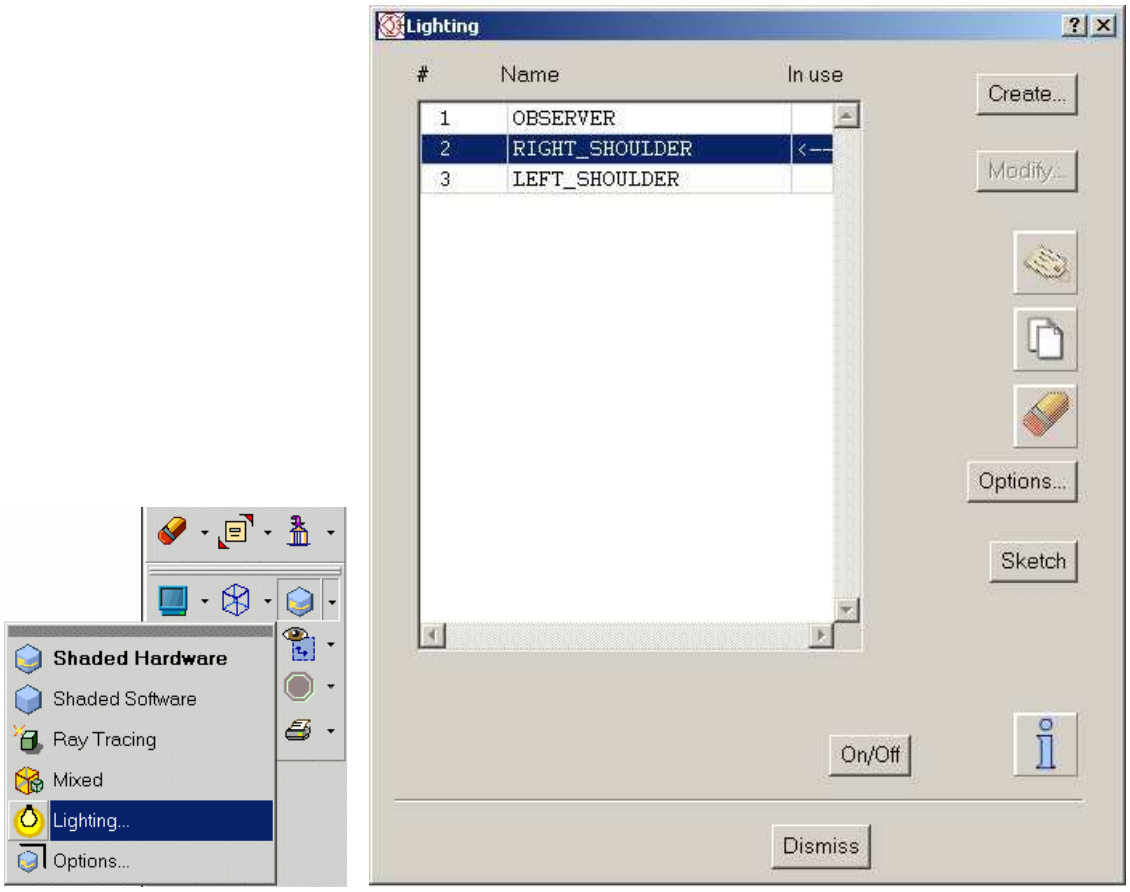

### Background color

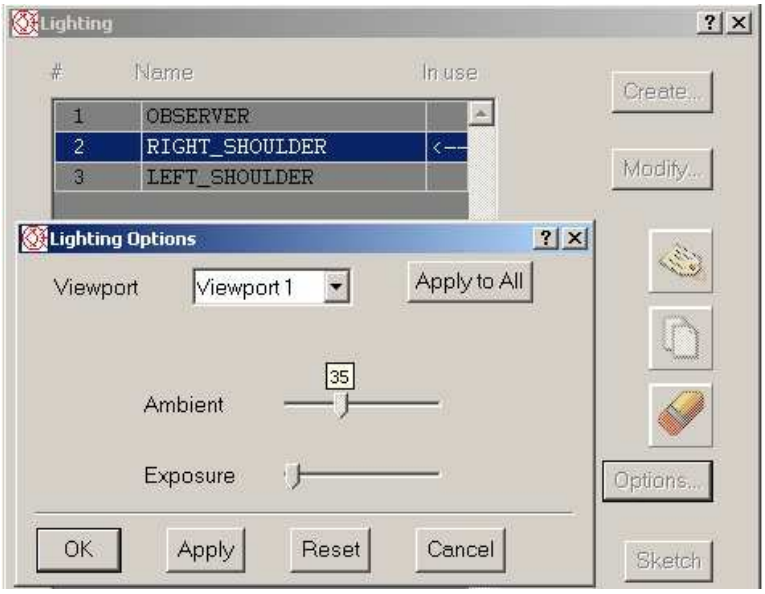
The background color of the image is just as important as the color of the part. White is the most appropriate background color for images that will be inserted into Word documents. To change an image's background color:

1. Choose **Options > Background Color**.
2. Pick the appropriate color.



# Lighting Options



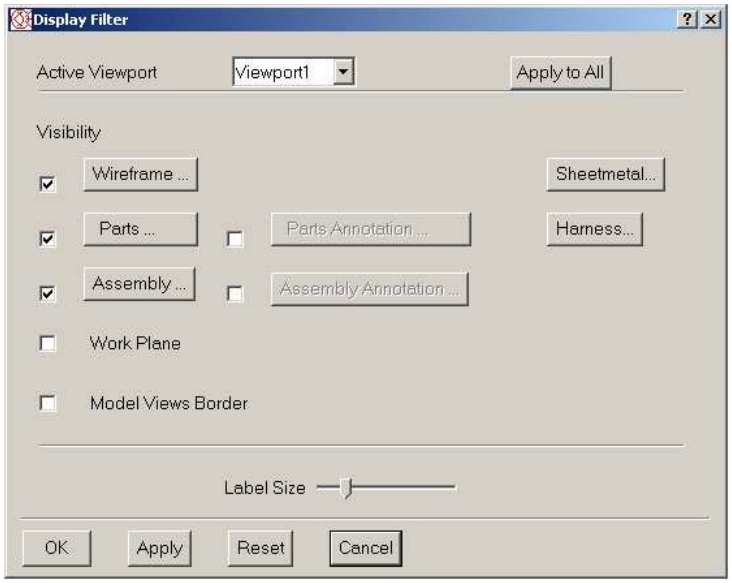



## Lighting

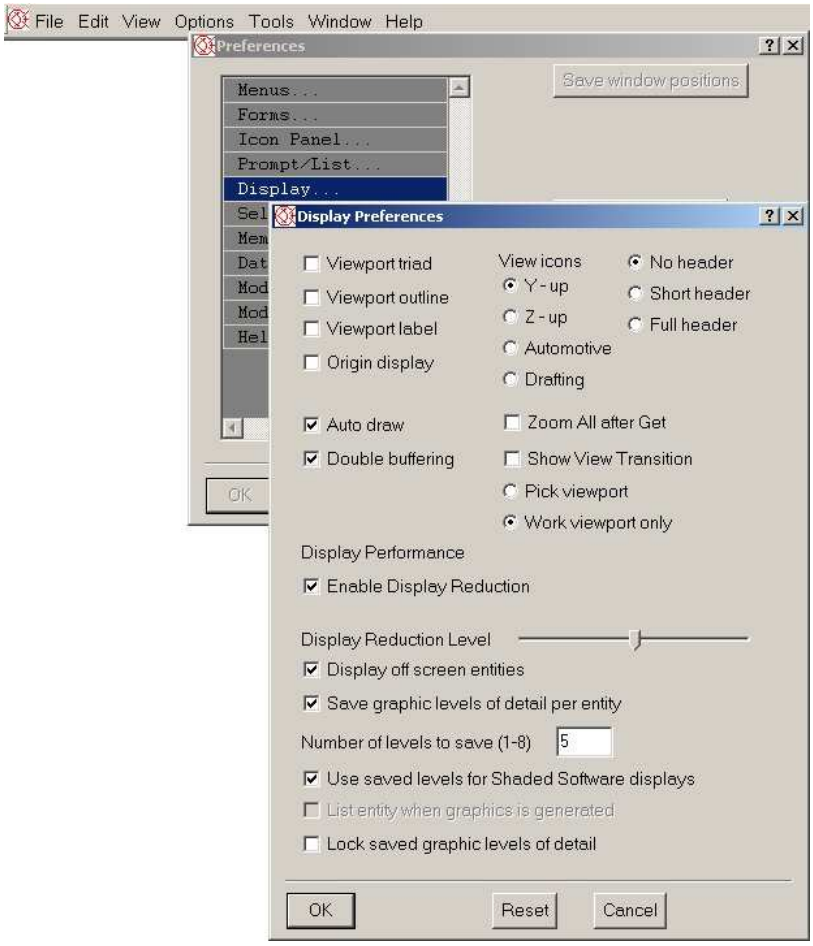
Adjusting the lighting on your image can highlight important details of the image when it is exported from I-DEAS. To adjust the lighting:

1. Click and hold the **Shaded Hardware** button.
2. Choose **Lighting**.
3. You can turn on or off three default light sources.
    a. Observer—light coming from the observer (works well for cylindrical and spherical shapes but not as well for planar shapes).
    b. Left Shoulder—light coming from the left.
    c. Right Shoulder—light coming from the right.
4. You can use the **Options** tab to turn up or down ambient light (it is best to keep it within the range of 25 to 45), but exposure is best left at 1.

## Display Filters




## Display Preferences



## Display filters and preferences

It is important to set display filters and preferences before capturing an image. To view or change them:

### Display filters

1. Click and hold the **Display Filters** icon.
2. Click on **Parts** and toggle everything off unless you want something specific to show.
3. Click on **Assembly** and toggle everything off.
4. Toggle off **Work Plane** and **Model Views** border. Leave **Parts Annotation** or **Assembly Annotation** toggled on if you intend to add I-DEAS 3-D annotation to your image.

### Viewport, Origin, and Header Options

1. Choose **Options > Preferences > Display**.
2. Turn off viewport, origin, or header options as desired.

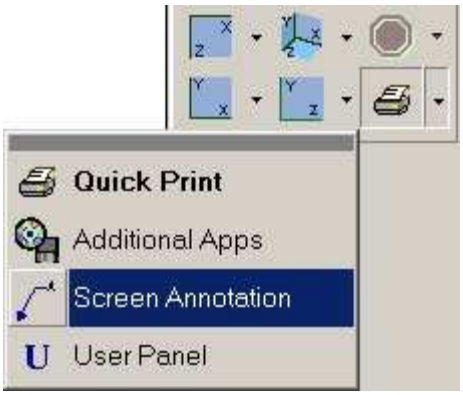
## Size and orientation

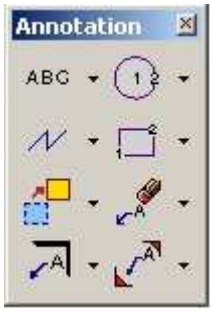
It is important to adjust the size and orientation of an image in I-DEAS. Images captured at the correct size look better than those that are resized later. The following function keys allow you to adjust the size and orientation of an image:

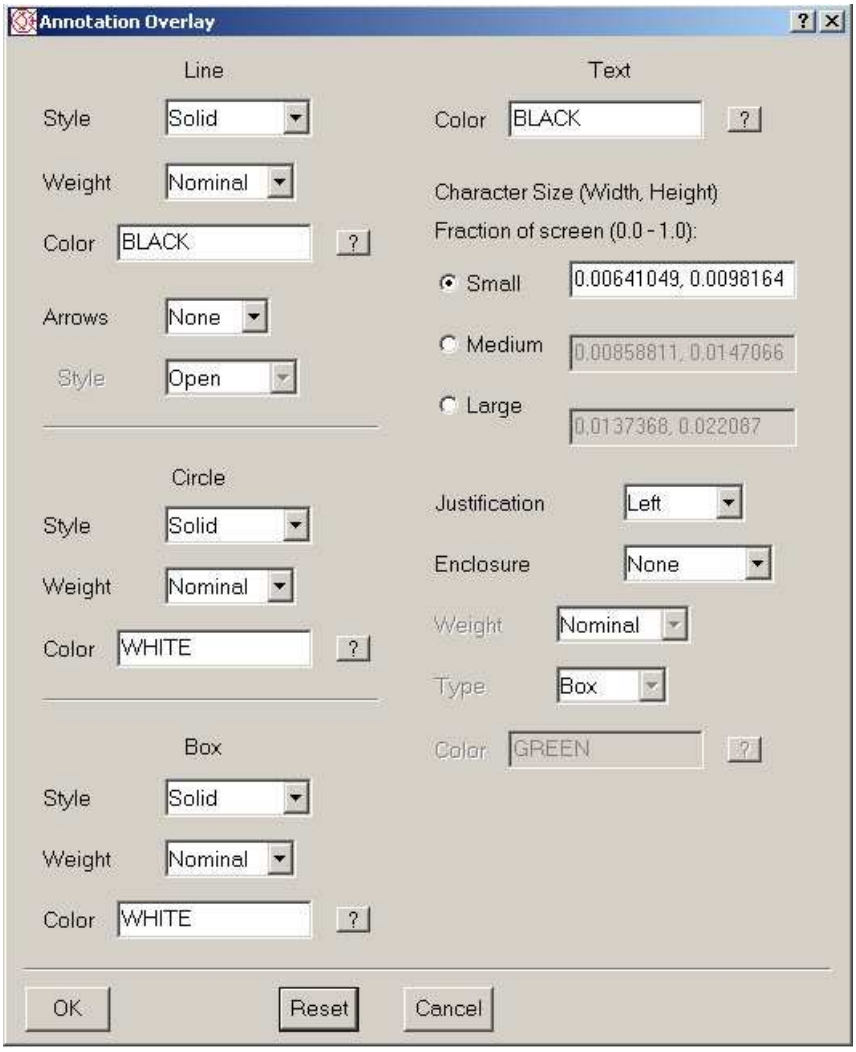
1. **F1**—pans an image.
2. **F2**—zooms in or out on an image.
3. **F3**—dynamically rotates an image.

You can sometimes clean up jagged edges by rotating the image when you are in **Isometric View**.

# I-DEAS 3D Annotation



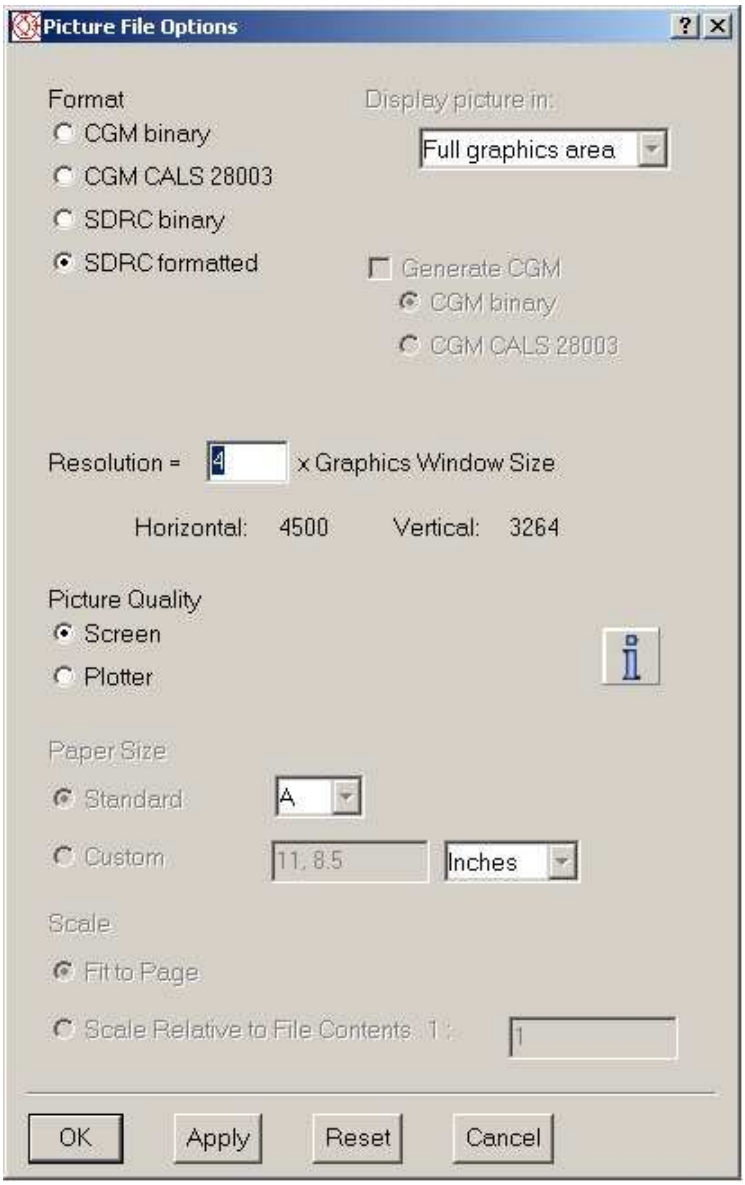



## 3D annotation

You can add text and lines to your image in I-DEAS. To do this:

1. Click and hold on the **Quick Print** icon.
2. Scroll to **Screen Annotation**.
3. This will bring up an **Annotation Overlay** that allows you to add text and lines to your image. Options are limited, but it is important to check entity Color and Text Size and Justification. Adjust the image size and orientation BEFORE you add 3D annotation!

# Picture File Options



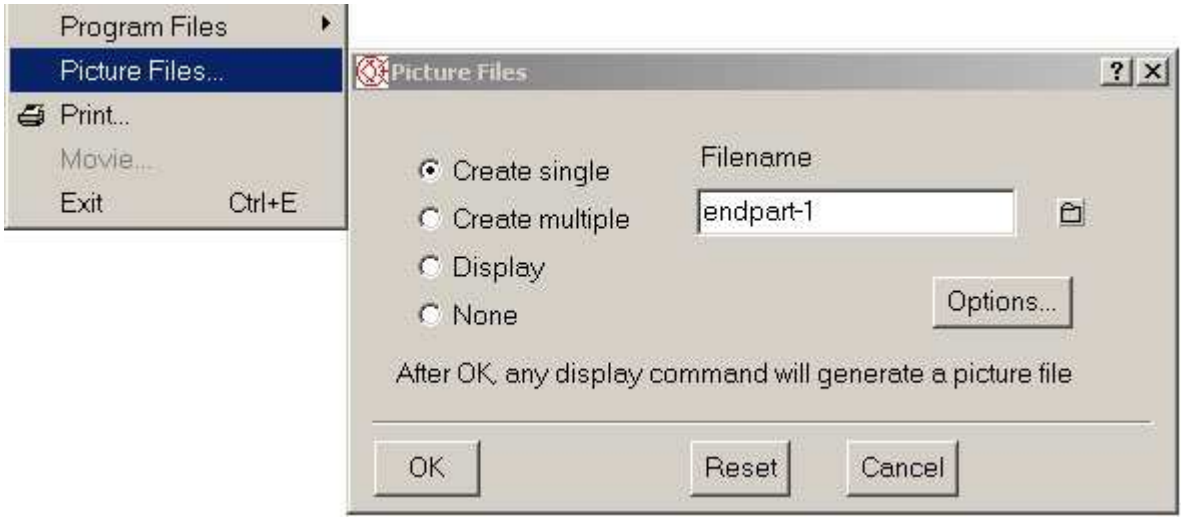
## Formatted picture files

Creating a formatted picture file before capturing an image will give you the best quality output. To do this:

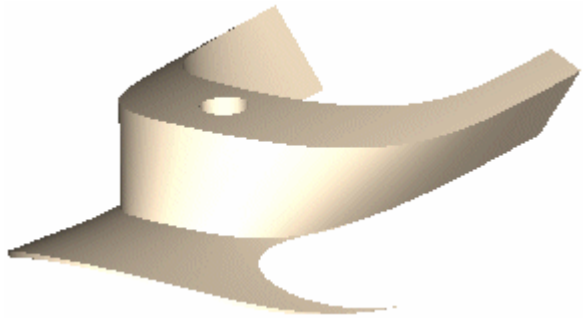
1. Choose **File > Picture Files**.
2. Create **Single**.
3. Name the file. Do not use any spaces in the filename.
4. Click the **Options** button.
5. Change the file to **SDRC** formatted.
6. Change the resolution to any number between 1 and 5. *
7. Click **Apply**.
8. Click **Ok**.
9. Click the **Redisplay** icon.

*This will differ depending on the size and quality of the picture. The resolution at which you can save might also depend on how much data you can store, since the picture files can quickly become quite large. The files will be stored in your default Scratch directory.

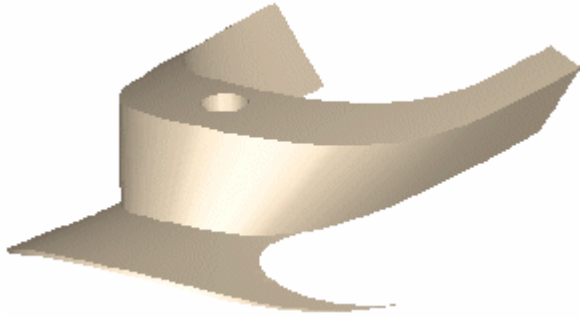
### Picture File Menu



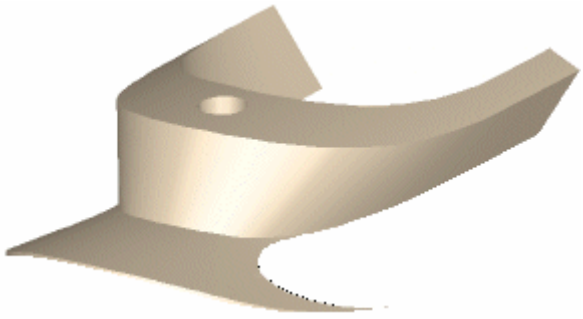
## Comparison of I-DEAS Display and PFF Resolution



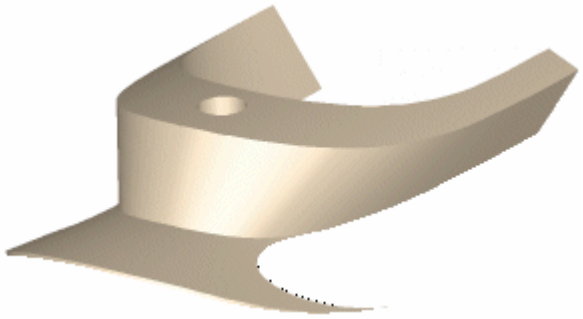
I-DEAS Display
Capture file .gif = 10 KB
Picture file .pff = none



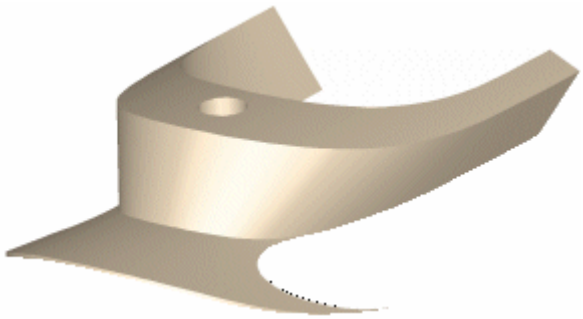
Picture File Resolution = 1
Capture file .gif = 10 KB
Picture file .pff = 191 KB



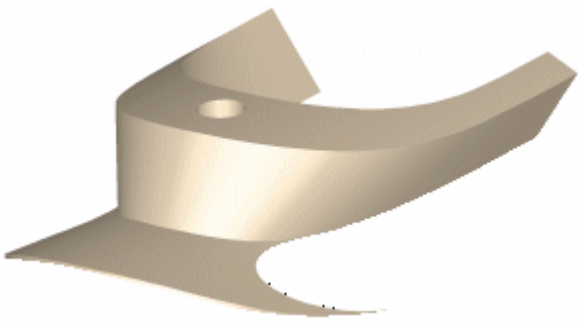
Picture File Resolution = 2
Capture file .gif = 10 KB
Picture file .pff = 717 KB



Picture File Resolution = 3
Capture file .gif = 11 KB
Picture file .pff = 1,579 KB



Picture File Resolution = 4
Capture file .gif = 11 KB
Picture file .pff = 2,776 KB



Picture File Resolution = 5
Capture file .gif = 11 KB
Picture file .pff = 4,308 KB

## Capturing and saving the image with Paint Shop Pro

Once you have created the best possible image in I-DEAS, you are ready to capture it.

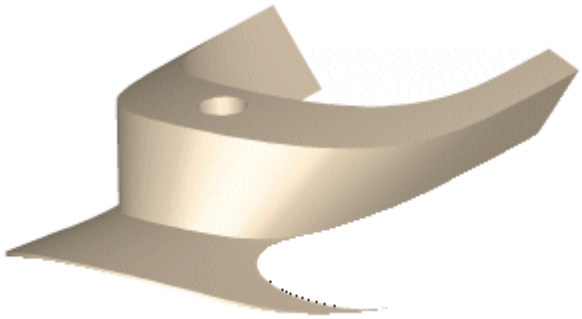
### Screen capture

1. Click on the **Screen Capture** button in your toolbar, and choose **Start** from the drop down menu (or press **Shift +C**).
2. Toggle to your I-DEAS window and press **F12**.
3. Draw a box around your object.
4. It will appear in Paint Shop Pro.

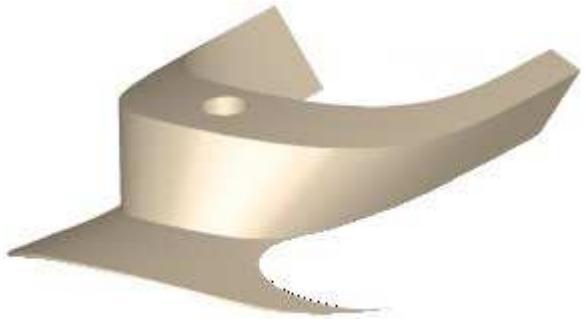
### Saving the image

It is best to save the image as a Paint Shop Pro document (.psp) first and then save a copy as a GIF (.gif) or JPEG (.jpg). This allows you to maintain an uncorrupted original Paint Shop Pro file while you experiment with the display and printing of GIF and/or JPEG files. You can also crop the Paint Shop Pro file, if necessary, and create new GIF and/or JPEG files.

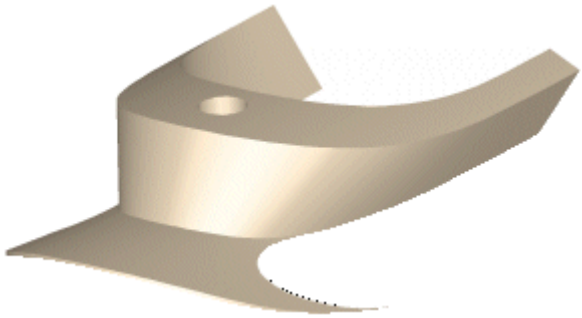
## Comparison of GIF and JPG Images



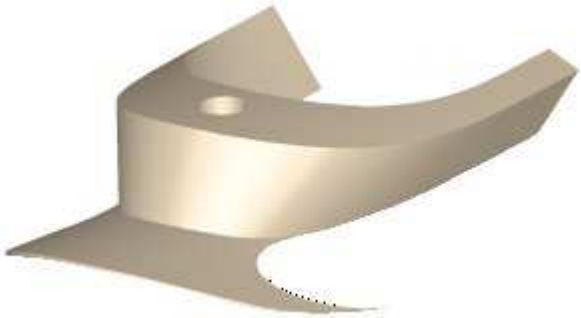
GIF File (PFF Res = 4)
Capture file .gif = 11 KB
Picture file .pff = 2,776 KB



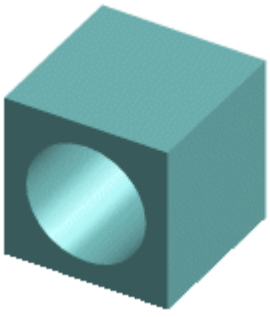
JPEG File (PFF Res = 4)
Capture file .jpg = 6 KB
Picture file .pff = 2,776 KB



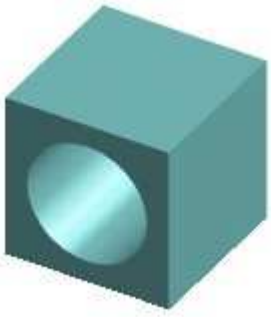
GIF File (CGM Res = 4)
Capture file .gif = 11 KB
Binary file .cgm = 901 KB



JPEG File (CGM Res = 4)
Capture file .jpg = 6 KB
Binary file .cgm = 901 KB



GIF File (PFF Res = 4)
Capture file .gif = 5 KB
Picture file .pff = 2,639 KB



JPEG File (PFF Res = 4)
Capture file .jpg = 5 KB
Picture file .pff = 2,639 KB

## Image file formats

### Paint Shop Pro

The Paint Shop Pro (.psp) file type creates a good image, but it can't be inserted directly into Microsoft Word. When you try to insert a .psp file into Word, it will try to convert the .psp file into another file format. Allowing Word to convert your file can lead to unexpected results, so it is better to save the image as a GIF or JPEG in Paint Shop Pro.

### GIF

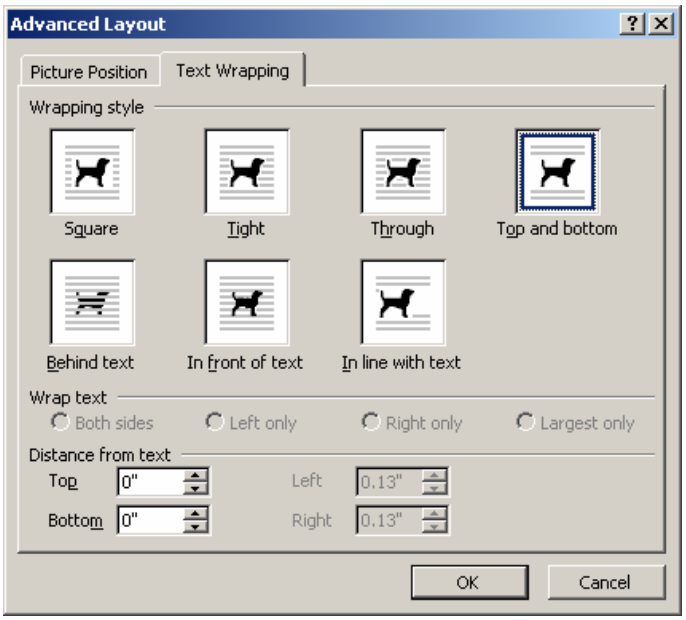
GIF stands for Graphic Interchange Format. A GIF is a compressed image file format, and its compression scheme is "lossless" (meaning that it does not lose quality as it is compressed). GIF images can use a maximum of only 256 colors, so they are best for images that contain large expanses of flat color. GIF images are also smaller than the parent Paint Shop Pro files.

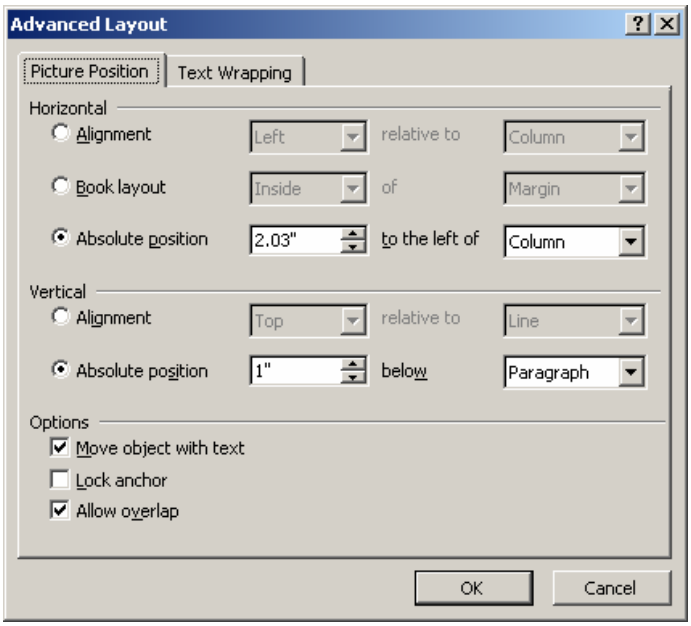
### JPEG

JPEG stands for Joint Photographic Experts Group. A JPEG is also a compressed image file format, but unlike a GIF, it is "lossy" (meaning that data is removed from the image in order to make the file size smaller). JPEG files are best used for photographs or other images that have subtle shading because they can contain 16.7 million colors. The "lossy" JPEG compression is acceptable for these types of images because pixels can be removed without any noticeable difference to the eye. JPEG images are also smaller than the parent Paint Shop Pro files.

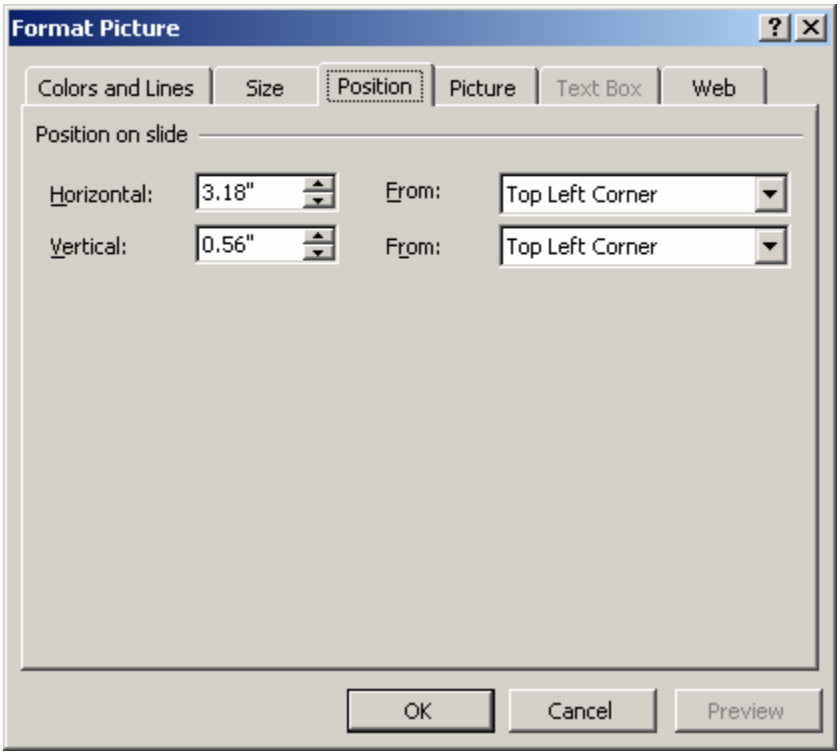
It is usually best to try both a GIF and a JPEG image in your document—use whatever looks and prints best.

## Word




## PowerPoint



# Inserting saved images into Word and PowerPoint

## Word

There are two ways to insert images into Word documents—inline and floating. Inline images work well if you want the image to be placed between two specific lines of text. If you want the image to be placed in a specific area of a page, it is better to float the image and wrap your text around it.

### Inserting an inline image

1. Choose **Insert > Picture > From File**.
2. Navigate to the picture that you want to insert.
3. Once you have selected the picture, click **Insert**.
4. Your picture will automatically be inserted inline with the text of your document.

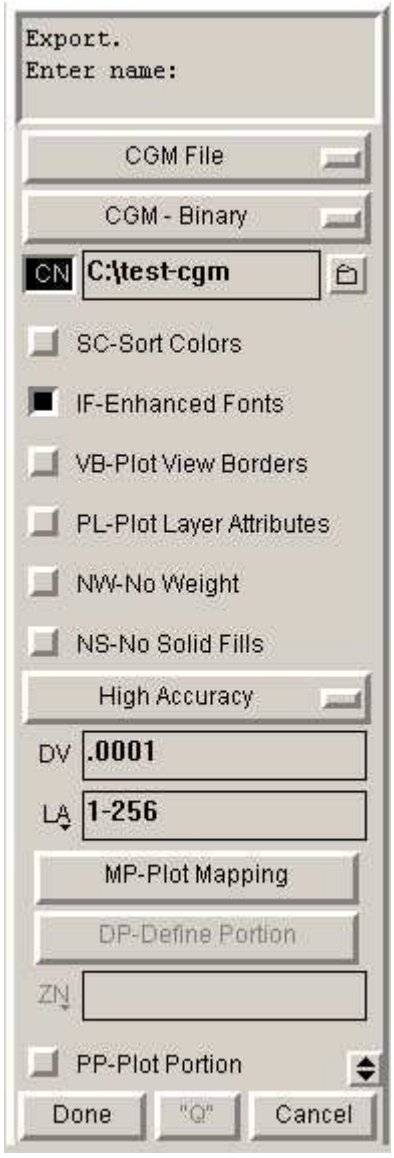
### Inserting a floating image

1. Choose **Insert > Picture > From File**.
2. Navigate to the picture that you want to insert.
3. Once you have selected the picture, click **Insert**.
4. Your picture will automatically be inserted inline with the text of your paper.
5. Click on the picture and select **Format > Picture**.
6. Choose the **Layout** tab and click **Advanced**.
7. Choose the **Text Wrapping** tab to set how you want text to wrap around the image.
8. Choose the **Picture Position** tab if you would like to enter an absolute position for the image.
9. Click **Ok**.
10. Click **Ok** again.
11. Move the picture to the correct location on the page.

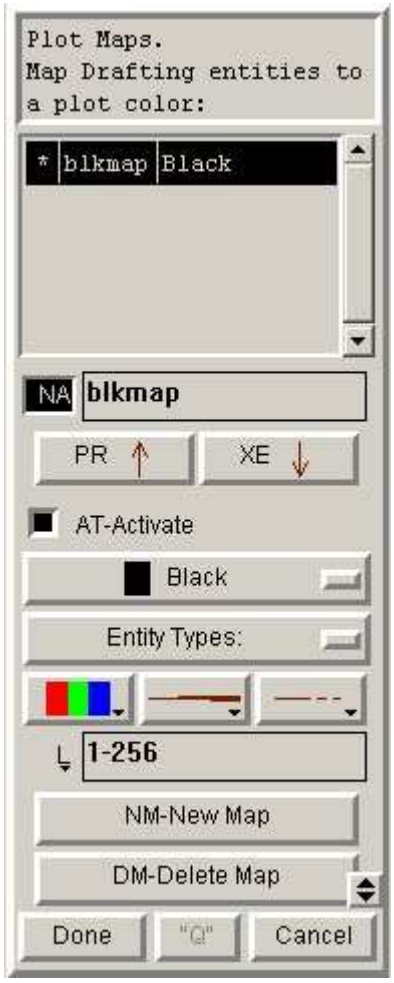
### PowerPoint

All graphics inserted into a PowerPoint file are floating, so you can place them anywhere on the page.

1. Choose **Insert > Picture > From File**.
2. Navigate to the picture that you want to insert.
3. Once you have selected the picture, click **Insert**.
4. **Format > Picture** allows you to position the picture and make other changes.




CGM Export Menu




CGM Plot Mapping

# 2-D drawing techniques

## Export CGM files of 2-D drawings

The Screen Capture techniques described earlier do not work well for producing a good quality 2-D drawing image. When inserted into a Word or PowerPoint document, the captured image is jaggy, and does not respond well to resizing efforts. One way to produce a good quality 2-D image is by exporting a CGM file from I-DEAS drafting.

1. Open a 2-D drawing in I-DEAS.
2. If you do not want view names to print, click twice on the **View Visibility** icon:
   a. Select **All Views**.
   b. Under **Name/Origin** select **Hide Name/Orig**.
   c. Select **Done**, then **Cancel**.
3. Choose **File > Export**.
   a. Select **CGM File** as the Export Type.
   b. Enter a File Name in the **CN** field, or click the **Folder** icon to browse.
   c. Toggle off **Plot View Borders** if desired.
   d. Select **High Accuracy**.
   e. Select **Done** to create CGM file, then **Cancel**.

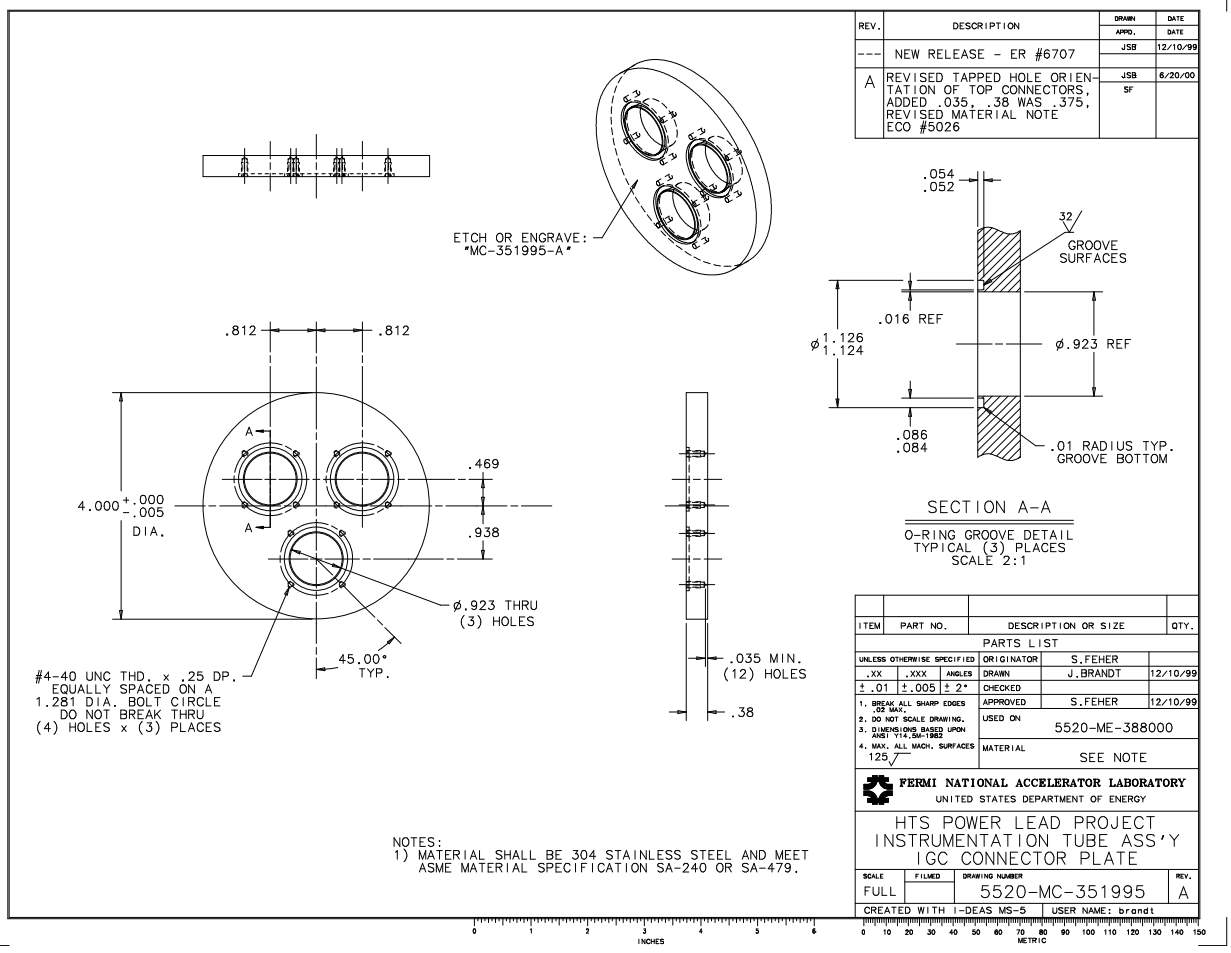
Regardless of the background color used in I-DEAS, the above procedure will produce a file that has line and text colors the same as the drawing colors, with a background color of white.

If BLACK lines and text are desired, the following step 3 can be used:

3. Choose **File > Export**.
   a. Select **CGM File** as the Export Type.
   b. Enter a File Name in the **CN** field, or click the **Folder** icon to browse.
   c. Toggle off **Plot View Borders** if desired.
   d. Select **High Accuracy**.
   e. Select **Plot Mapping**.
   f. Enter a Map Name in the **NA** field and press the **Enter** key.
   g. Click the plot map you just created in the field above the NA field.
   h. Click and hold **Plot Color** and scroll to select **Black**.
   i. Toggle on the **AT-Activate** switch.
   j. Click **Done** once, an asterisk will appear by the plot map.
   k. Click **Done** again to return to the CGM Export menu.
   l. Select **Done** to create CGM file, then **Cancel**.

The CGM files can be inserted directly into a Word or PowerPoint document as described in the previous section. These files are larger in size than screen captures, but they print well and resize cleanly with no loss of print quality.

## Example C-Size drawing exported as CGM



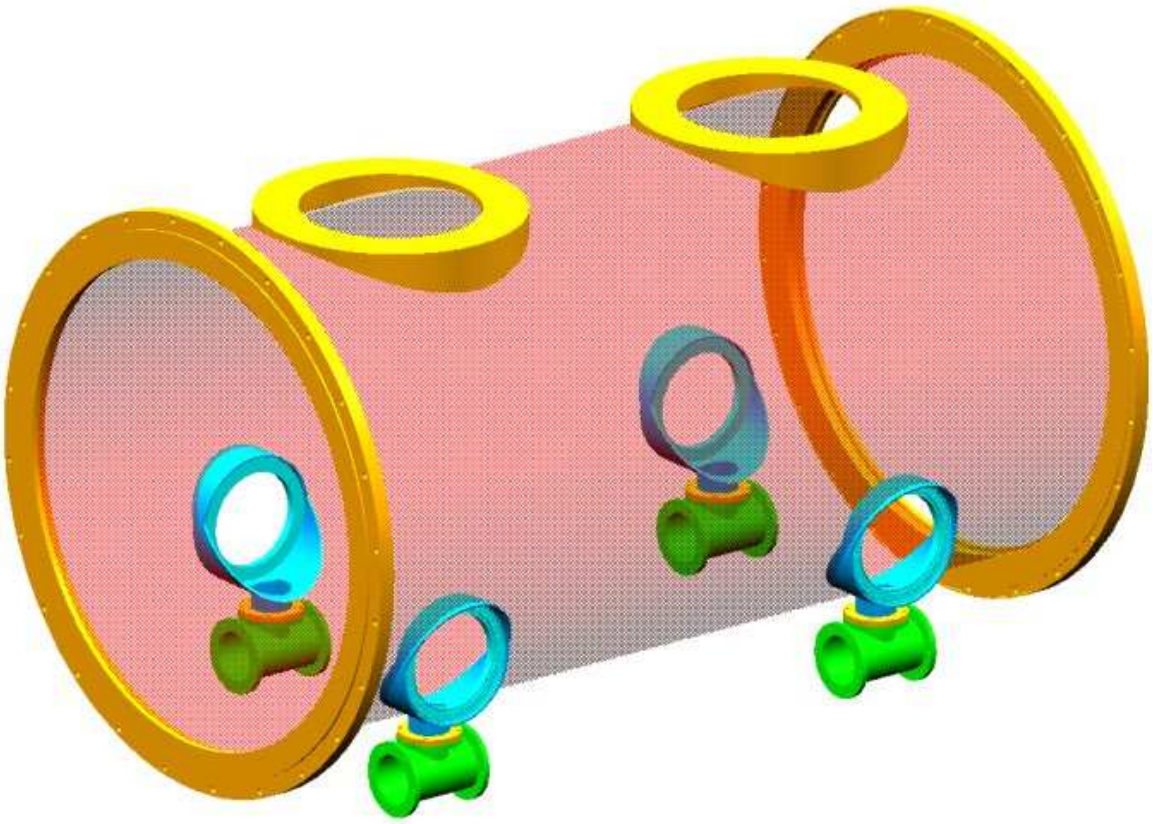

CGM file size = 310 KB

# Large size I-DEAS image techniques

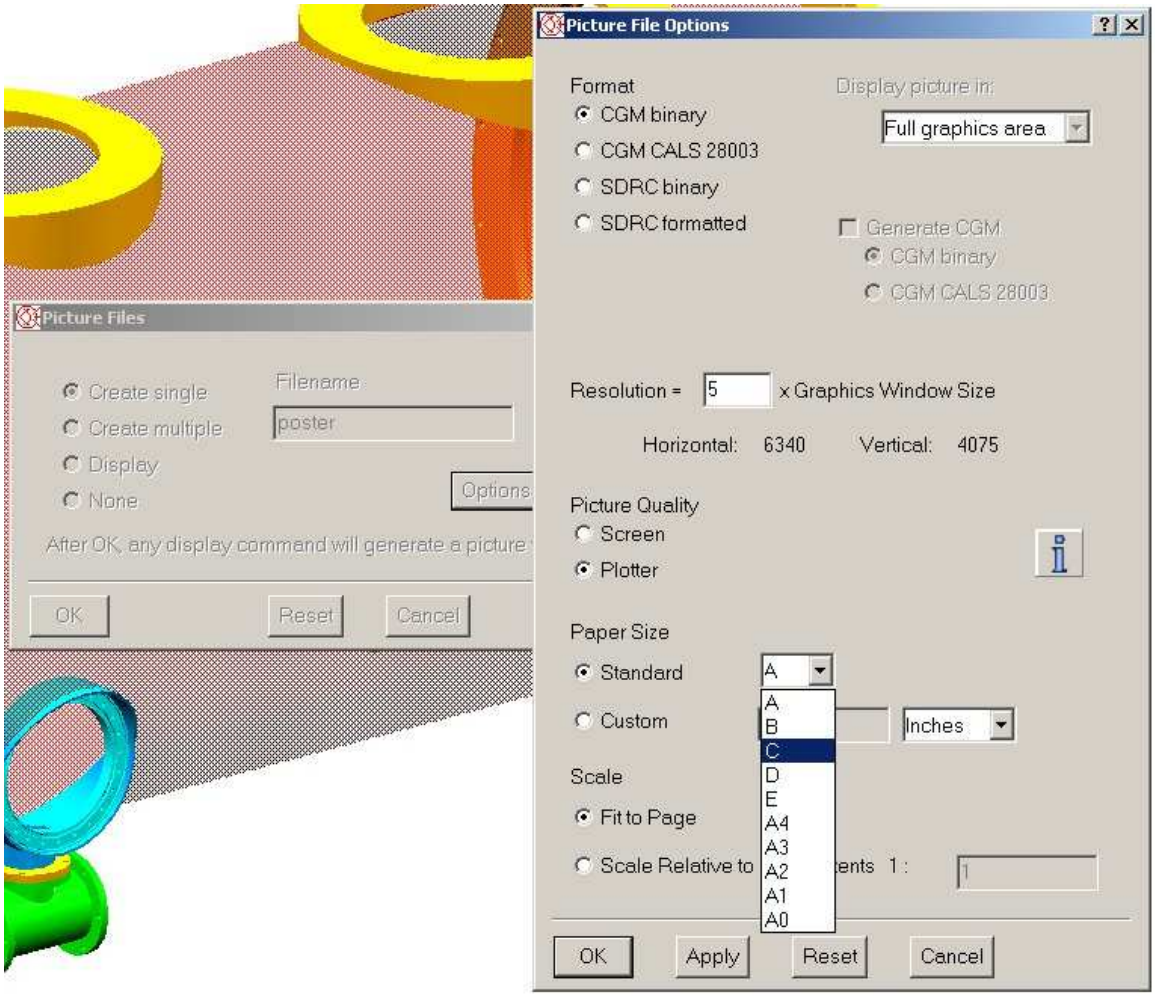
## CGM picture files for large plots

Creating a CGM picture file with appropriate plot size options set, will give you the best quality output for poster size plots. A standard screen capture as previously described will create a poster size plot with huge pixels resulting in a terrible quality plot. A file must be created that keeps the pixel size small and is scaled appropriately for the desired poster size plot. These files tend to be quite large so, depending upon the plot size, your computer might be limited in resources. Previously described tips for clearing your display of unwanted entities should be followed here as well. The background should be set to white.

**I-DEAS standard screen image (partially transparent)**



## I-DEAS Picture File Options

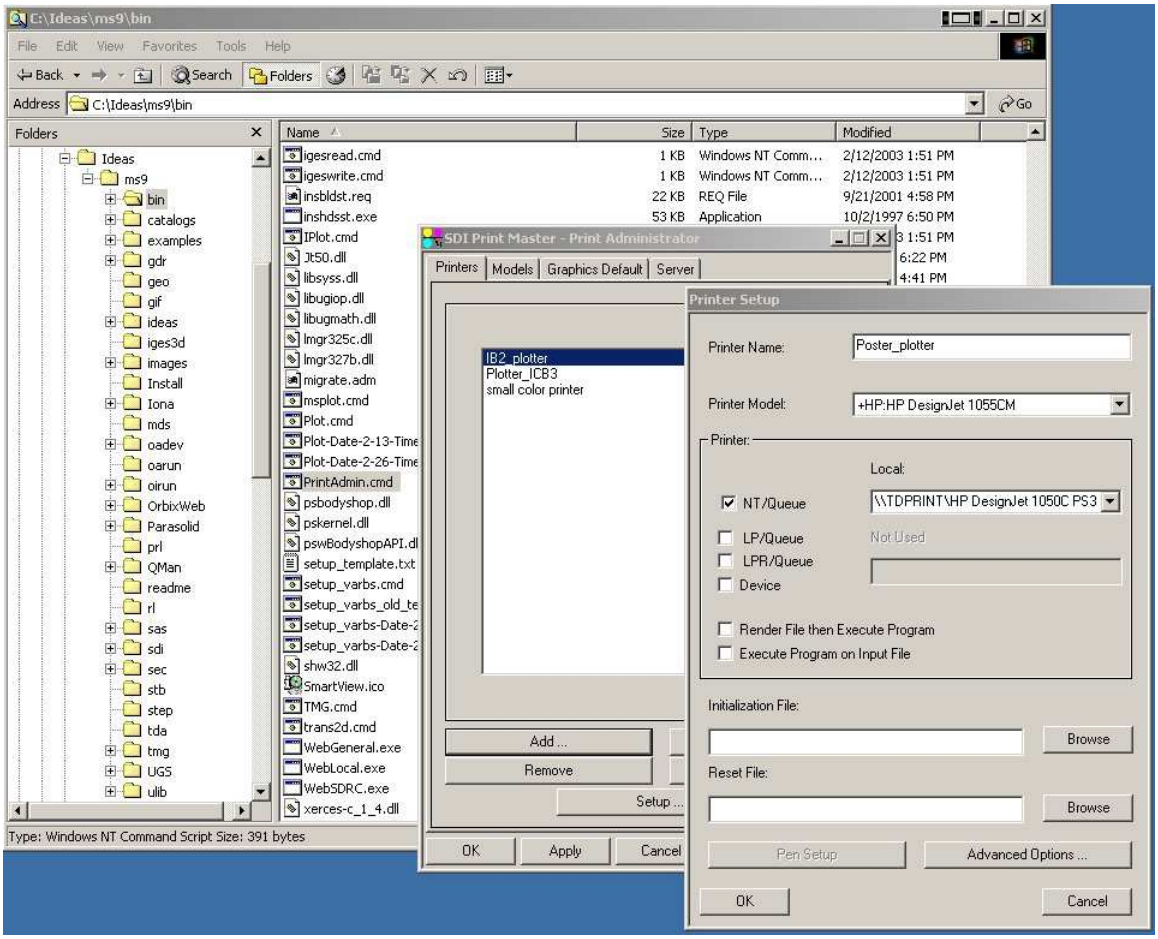


To create a high resolution, poster size plot file, do the following:

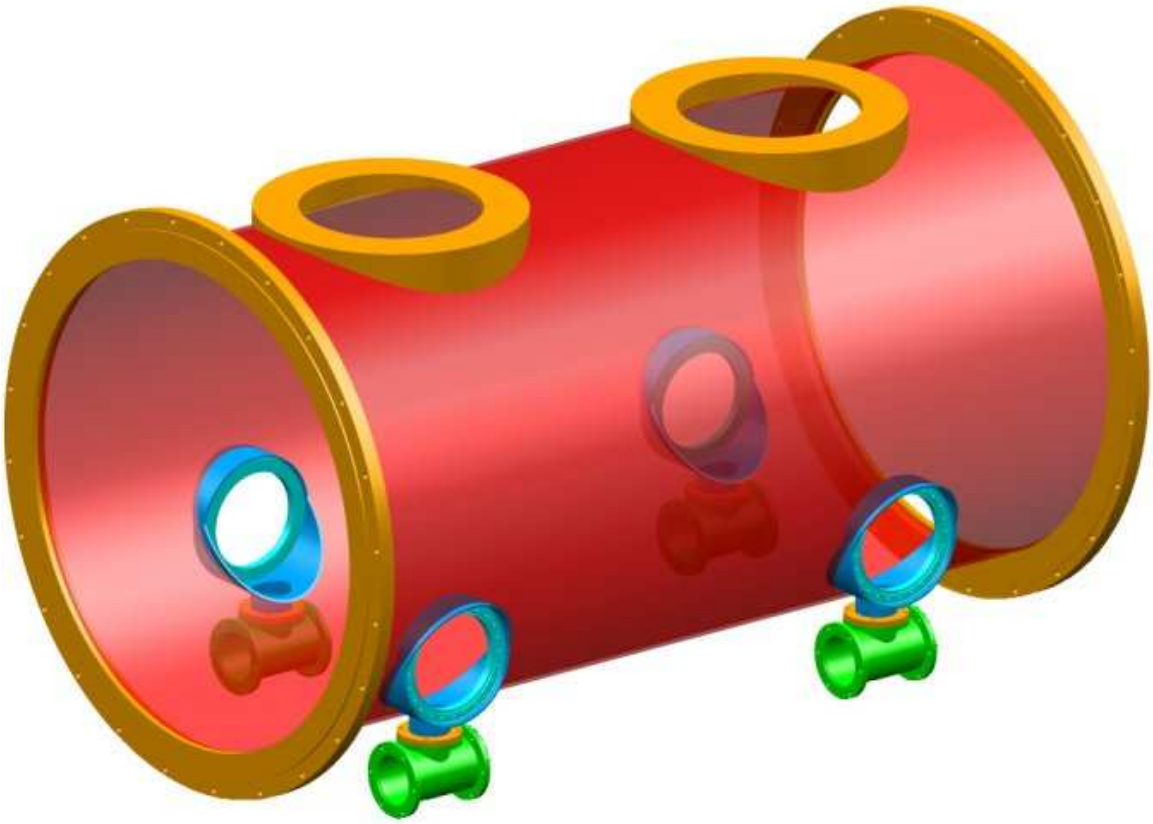
1. Choose **File > Picture Files**.
2. Create **Single**.
3. Name the file. Do not use any spaces in the filename.
4. Click the **Options** button.
5. Set the file to **CGM binary**.
6. Change the resolution to any number between 1 and 5. (5 = best, slow, large file)
7. Set Picture Quality to **Plotter**.
8. Set Paper Size to **Standard** and select the desired output size.
9. Set Scale to **Fit to Page**.
10. Click **Apply**.
11. Click **Ok**.
12. Click the **Redisplay** icon. (Large assemblies will process for a very long time)

The new image will process very slowly, especially for large assemblies, complex parts, and/or a resolution set to “4” or “5”. A file will be created that can sometimes be very large. The image is also displayed on the screen. The image shown below is 36.5 Mb. Although this file can be crunched down to about 50Kb as a JPEG in Paint Shop Pro, the resulting file would be worthless for creating a high resolution, poster size plot.

# PrintAdmin.cmd Forms and Settings



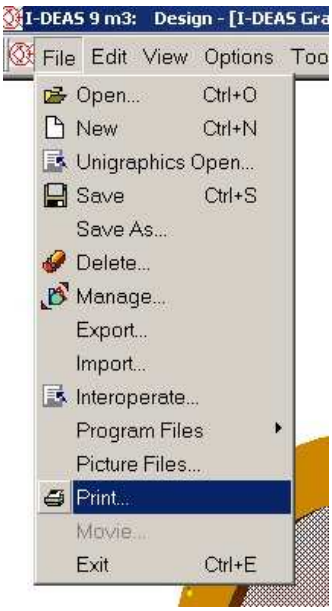
**I-DEAS screen display after processing CGM binary output (file = 36.5 Mb)**

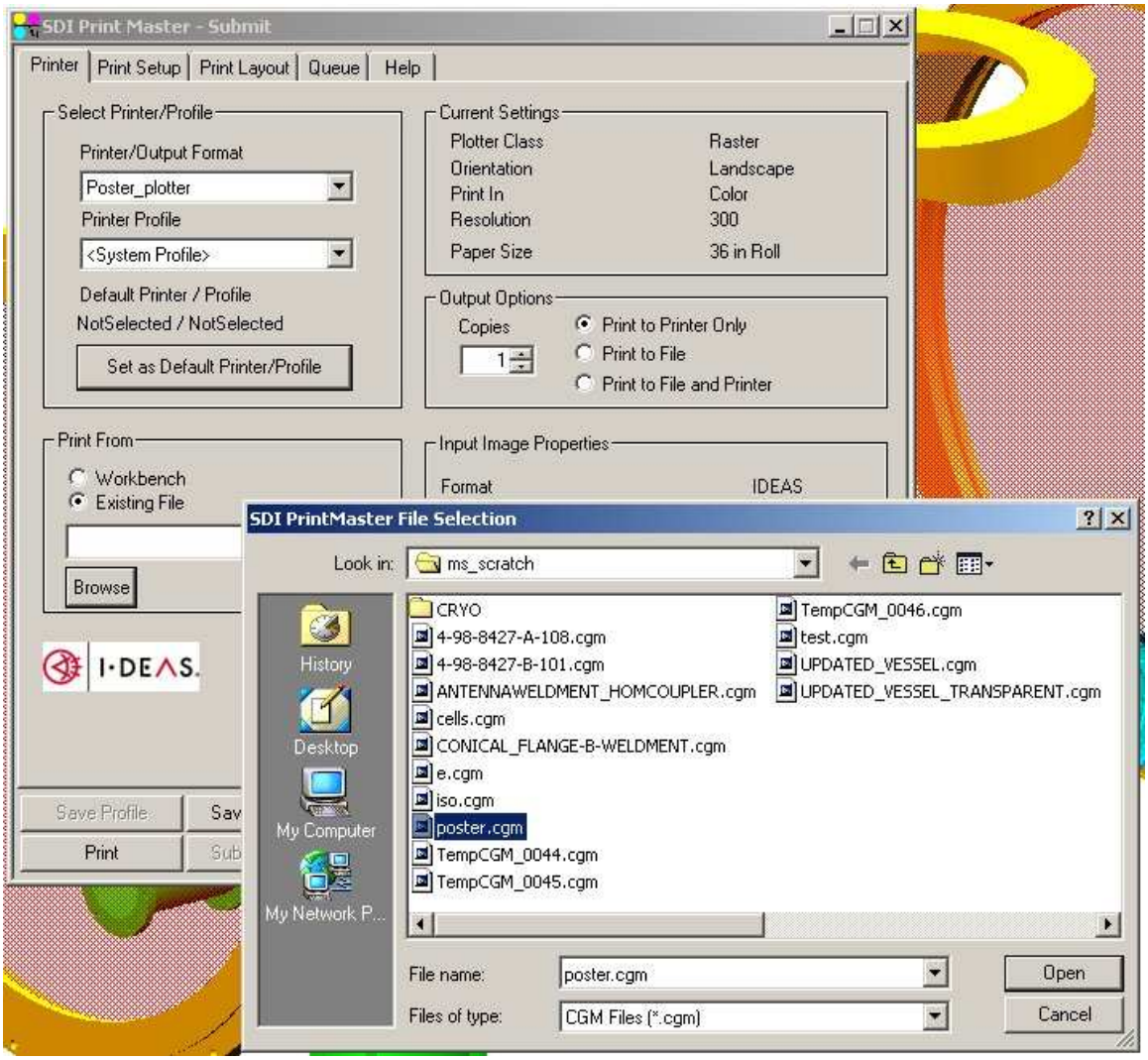


Now that a suitable file has been created, how can it be printed on the plotter? I-DEAS has a print utility that is sometimes not setup by our local administrators. The following steps must be done *once* to setup your printer to be used within the I-DEAS print utility:

1. Double click on the **PrintAdmin.cmd** file located in your I-DEAS installation.
2. Click the **Add** button.
3. Type in a meaningful Plotter name.
4. For the Printer Model, select an appropriate plotter type for your printer.
5. Check the box, **NT/Queue**.
6. For **Local Printer**, pull down the menu and select your plotter. If your plotter is not listed, you must first use the PC printer utility and add a printer (see your local computer administrator for additional help if needed).
7. Click **OK**.
8. Click **OK** again to close the last form.

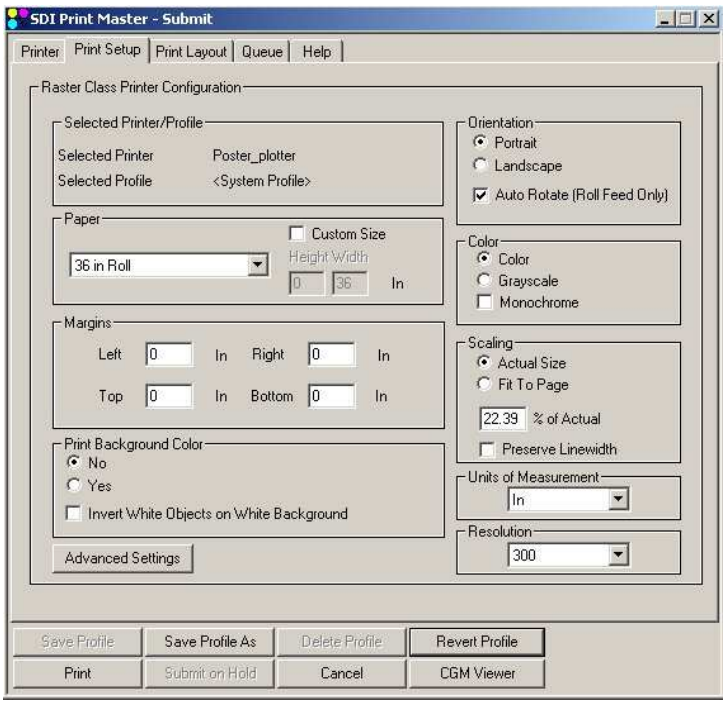
Your plotter should now be available from the I-DEAS Print utility.

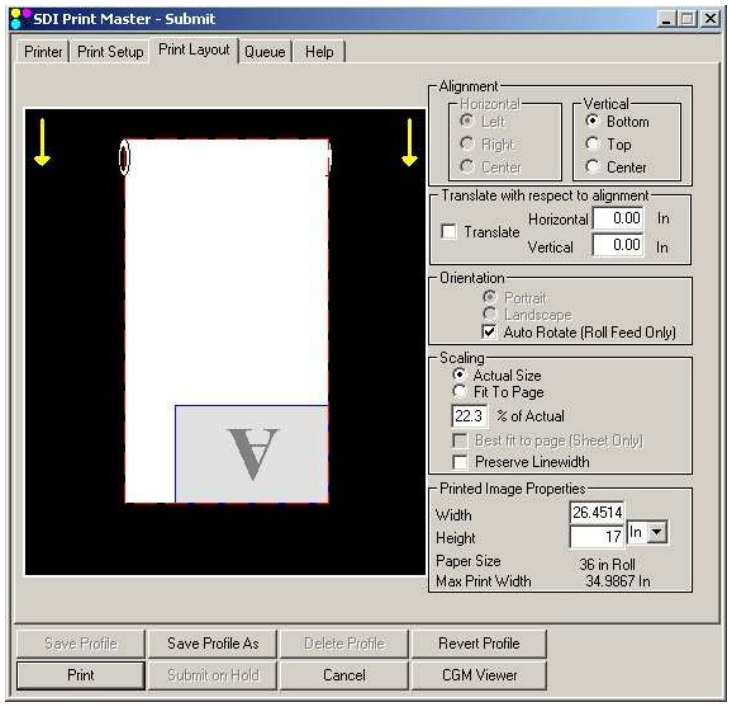

I-DEAS 9 m3: Design - [I-DEAS Gra
File Edit View Options Too
Open... Ctrl+O
New Ctrl+N
Unigraphics Open...
Save Ctrl+S
Save As...
Delete...
Manage...
Export...
Import...
Interoperate...
Program Files
Picture Files...
Print...
Movie...
Exit Ctrl+E


SDI Print Master - Submit
Printer
Print Setup
Print Layout
Queue
Help
Select Printer/Profile
Printer/Output Format
Poster_plotter
Printer Profile
<System Profile>
Default Printer / Profile
NotSelected / NotSelected
Set as Default Printer/Profile
Current Settings
Plotter Class Raster
Orientation Landscape
Print In Color
Resolution 300
Paper Size 36 in Roll
Output Options
Copies 1
Print to Printer Only
Print to File
Print to File and Printer
Print From
Workbench
Existing File
Browse
Input Image Properties
Format IDEAS
I·DEAS.
Save Profile
Print
SDI PrintMaster File Selection
Look in: ms_scratch
History
Desktop
My Computer
My Network P...
CRYO
4-98-8427-A-108.cgm
4-98-8427-B-101.cgm
ANTENNAWELDMENT_HOMCOUPLER.cgm
cells.cgm
CONICAL_FLANGE-B-WELDMENT.cgm
e.cgm
iso.cgm
poster.cgm
TempCGM_0044.cgm
TempCGM_0045.cgm
TempCGM_0046.cgm
test.cgm
UPDATED_VESSEL.cgm
UPDATED_VESSEL_TRANSPARENT.cgm
File name: poster.cgm
Files of type: CGM Files (*.cgm)
Open
Cancel

To plot this file, do the following:

1. Choose **File > Print…** (the SDI Print Master Form will open)
2. Under the **Print** tab**, Printer/Output Format**, select your plotter.
3. Under the **Print** tab**, Print Form,** select **Existing File** and **browse** for the CGM file that you created earlier.
4. Under the **Print** tab**, Output Options,** select **Print to Printer Only.**
5. Under the **Print Setup** tab**, Paper,** select the type and size of paper you use.
6. Under the **Print Setup** tab**, Orientation,** select **Auto Rotate** if you are using a roll feed plotter.
7. Under the **Print Setup** tab**, Scaling,** select **Actual Size.**
8. Under the **Print Layout** tab**, Printed Image Properties,** set the **width** or **height** of you plot based on the plot size you chose when you created the CGM file.
9. Click the **Print** command button in the lower left corner of this form.



**Notes:**

**Notes:**